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ABSTRACT

Research and observation have indicated that there is a connection between reading and writing. This connection has been confirmed through the research of D. Graves, L. Calkins, G. Bissex, and M. Baghban. Cognitive theorists believe that reading and writing involve similar schema or structures. Much of the pedagogy and research suggest that the processes of reading and writing are mutually reinforcing and should even be taught together as a common base of meaning. Specific research on how writing affects reading comprehension often focuses on sentence combining. Because vocabulary is crucial to reading comprehension and writing reinforces what students understand orally, dictation is an advocated writing method. Paraphrasing and writing abstracts are also proven methods for increasing reading comprehension. Research on the writing process by P. Flemming showed that peer conferencing encourages students to get involved as readers and writers and that the decisions and awareness that grow from this process transfer to reading comprehension. Finally, writing not only affects reading comprehension, but reading and writing mutually affect learning. Educators should teach reading and writing together within a contextual framework, while research is needed on the effects of writing on reading and reading on writing. (Three pages of references are provided.) (SRT)

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The Connection of Writing to Reading and its Effect on Reading Comprehension

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Although writing has had a place in history as early as the 16th century (Donsky, 1984) it has been only recently that we as a nation have become focused on writing as a skill, a craft, and as a means of aiding its sister-twin, reading. Research and observation have indicated that there is a connection between the process of reading and the process of writing. The processes appear to be mutually interacting.

While Chall and Stahl (1982) stated an increased interest in the 1980's with writing and its relationahip between reading and writing, others have bemoaned the greater tendency to focus on reading instruction and research (Graves, 1983; Calkins, 1983a). Shanahan stated in 1980, "Such imbalances are not likely to be remedied until writing curricula are proven to have a measurably enhancing effect upon reading development" (p. 358).

It is my contention that writing does enhance reading development. The purpose of this paper is therefore twofold. First, the reading/writing connection needs to be established through both research and pedagogy. Secondly a similar exploration needs to be made into how the act of writing promotes the development of reading, in particular reading comprehension.

Throughout this paper reference will be made to reading comprehension and writing. Gold (1981) states that "reading comprehension is the process of getting personal meaning from the printed message of an author" (p. 4). More explicitly, Barrett and Johnson say comprehension skills include "identifying a topic, stating main idea and related details, establishing details, establishing sequence, drawing conclusions,

and discriminating relevant and irrelevant details" (Fagan, 1982, p. 7). Holt and Vacca (1981) define writing as "the means by which someone transfers his or her mental image - or emotional state - concerning a physical actuality, a great revelation, an inner trauma, an outward experience, a novel idea to someone else in word form, by the vehicle of pen, pencil, or typewriter" (p. 938). A process approach to writing, commonly called the writing process, deals not with the finished product but with the actual procedure of writing, including prewriting activities, drafting, revising, and publishing. (Allan, 1984). For clarity, the process approach to writing will be referred to as the writing process.

The Reading/Writing Connection

Research on the Reading/Writing Connection

There is a growing body of research that confirms that reading and writing are related. In fact, the idea that they are connected began as early as 1912 with Baker and Thorndike who found reading and writing to be simbiotic (Donsky, 1984). Since that time other researchers have tested the integral nature of the reading and writing process, and the notion that proficiency in one often means proficiency in the other.

Shanahan (1980) made mention of a study by Barbig and La Campagne that concluded in 1968 that better writers do more voluntary reading. Zeman (1969) found that the best readers used more complex written sentence structures. Loban is perhaps best known for his thirteen year

study on the relationship between reading and writing. Birnbaum (1982) related that Loban found that children who were achieving well in one language process were also achieving well in the other.

Other researchers began to find similar results. Evanechko, Ollila, & Armstrong in 1974 positively compared reading achievement and syntactic maturity, while Heil had similar results in 1976 (Eckhoff, 1983). Grobe & Grobe studied ninth graders in 1977 and observed that good writers had higher reading scores (Stotsky 1983). Kroll found writing to be complementary in 1977 while Falk and Hayes found in 1979 and 1980 respectively that reading actually influenced writing maturity (Crismore 1982).

That good readers become good writers (and vice versa) was again emphasized in the 1980's when a new type of study emerged, observing reading and writing behavior during the act of reading and writing. Miller (1983) discussed Bissex's 1981 study that found that good writers think more about meaning while poorer writers concentrate on neatness and avoiding errors. Miller also stated that Perl had found similar results in 1980. Atwell found this to be true in 1981 when she observed that better writers did more rereading and planning (Stotsky 1983). This was again confirmed by Birnbaum (1982) who found in a study of selected fourth and seventh graders that the best students know just how and what to think during both reading and writing. Observations of the reading/writing process confirmed once again the reading/writing connection through the research of Graves (Graves & Murray, 1983), Calkins (1983b), Bissex (1980), and Baghban (1984).

While this is but a sampling of the research on the reading/writing connection, the point is made clear. The research has confirmed over the

decades a clear relationship between both reading and writing.

The Pedagogy on the Reading/Writing Relationship

During Calkins' research at the Atkinson Elementary School she assumed that reading and writing were primarily based on separate skills. Writing, she believed, was active and expressive whereas reading was passive and receptive. "Of course I was wrong. More wrong than I secretly realized" (Calkins, 1983b, p. 83). Her belief that the two processes were separate and competing, gave way to the conviction that to watch writing was to watch reading (Calkins, 1983b).

How in fact are reading and writing the same? How are they different? Holt & Vacca (1981) found reading and writing both utilized thinking, seeking, experimenting, action, interaction, practicing, and polishing in an effort to communicate. Easton (1982) said they were both learned processes using knowledge and memory as a base, and that each utilized strategies while engaging in them.

Easton believed there were differences as well. While writing comes more from knowledge, reading comes more from inference. She believed that writers have more choice and can control purpose. The reader cannot. Goodman and Goodman (1983) believe readers judge their effectiveness right away, but writers need feedback. In addition, readers don't need to write, but writers need to read and re-read.

Miller (1983) found that writing and reading were connected by interest, spelling, punctuation, grammar and composition. He also believed, along with Murray (1980), Smith (1983), Wilson (1981) and Galda

(1984) that the goal of reading and writing was to make sense. "Reading and writing are both language processes where the use of language cue systems must operate in an interdependent manner if meaning is to be found" (Miller, 1983 p. 9). Boiarsky & Johnson (1983) would agree, stating that "both engage in an active, constructive process to create meaning" (1983, p.38).

In fact, cognitive theorists not only feel that reading and writing, or comprehending and composition, are very much alike, but that they involve similar schema or structures. "It stands to reason that because writing and reading are both cognitive activities, writers as well as readers will have both higher-level and lower-level, embedded schemata" (Crismore, 1982 p. 12). Both Aulls (1975) and Applebee (1977) suggest uniting reading and writing so that one can aid the other.

Thus, much of the pedagogy and research suggest that the processes of reading and writing are mutually reinforcing and should even be taught together as a common base of meaning. As Goodman and Goodman state, "people not only learn to read by reading and write by writing but they also learn to read by writing and write by reading" (1983, p. 592).

The problem says Cioffi, is not that reading and writing are unrelated, but that "the relationship is not typically exploited in the schools" (1984, p. 176). However, as Shanahan points out, "just recognizing that the careful combination of reading and writing might improve reading development does not reveal what is to be done" (1980, p. 358-9). What can and should be done with the reading/writing connection, and specifically with writing to improve reading comprehension, will be the focus of the remainder of this paper.

The Importance Of Writing: Its Influence On Reading Comprehension

The Writing Pedagogy

What is the importance of writing and why is it important to reading comprehension? In short, why write? Why not just read? These are questions that are asked often by both educators and researchers alike.

Certainly, an understanding of the reading/writing connection answers many of these questions. Chall & Jacobs surmised, "not only is writing important for itself, but the strong relation of writing to reading and language suggests that the development of writing may also enhance reading and language" (1983, p. 625).

Others would agree. Wilson described Clay as feeling that writing could actually help organize reading behavior (1981). Platt (1977) confirmed this in her work with young children. Calkins (1983b) believed that writing "reinforces and develops skills traditionally viewed as reading skills"(p. 155-6). Newkirk (1983) in his work with young writers, found that writing had a positive effect on reading.

The cognitive theorists reviewed in the previous section also gave credance to the possibility of writing influencing reading and particularly reading comprehension. If the schemata for reading and writing are indeed similar, it would only make sense to utilize the schemata from one language process to aid the other. Shanahan (1980) must have found this to be true because he suggested manipulating schemata structures in writing to encourage structures in reading comprehension.

The notion of writing aiding reading comprehension is found in the

generative cognitive model as well. Wittrock (1983) suggested that writing involved constructing many of the same relations that reading and reading comprehension involved. "The generative activities we use to teach reading comprehension...closely resemble some of the processes used by writers to compose text" (p. 606).

The Research on Writing

It seems therefore a moot issue to say that writing is important, particularly to reading. But has the research brought this out? Stotsky states, "although the research base to support the use of writing to improve reading comprehension is still meager, its promise is rich" (1982, p. 338).

The research is meager. Perhaps the most documented research on writing affecting reading comprehension comes from the researchers of sentence combining. Sentence combining is "the act of combining several short sentences that have been derived by transformational analysis from longer ones" (Klein, 1980, p. 1). Hughes found a link between reading levels and syntactic maturity. As to reading comprehension, he stated, "the greatest gains in reading comprehension from sentence combining appeared to be from among the lower and middle group of readers" (1975, p. 53). Combs found a few years later that sentence combining had a positive effect on reading comprehension (Shanahan, 1980). Karlin (1983) relates that Fisher's study with fifth, sixth, seventh and ninth graders found the experimental group did better on standardized tests while Straw and Schreiner's fourth graders had improved reading comprehension and listening scores. In fact, Klein agrees with Stotsky and Combs in that

"sentence combining may well be one of the most promising single recent developments which can contribute directly to both written composition skills and reading comprehension development" (1980, p. 2).

While the research proved limited, there are other types of writing instruction that lend themselves to reading comprehension. Stotsky (1982) explored several. Because vocabulary is a crucial component to reading comprehension, and because writing reinforces what students understand orally, dictation is an advocated writing method. Reproduction, or active paraphrasing, is seen as excellent for developing reading comprehension, memory, and expression. Some even feel it is one of the first strategies that should be used to teach reading comprehension (Stotsky, 1982). Likewise paraphrase writing, or putting a subject in your own words, appears to require complete comprehension. Précis writing, often called abstract or summary writing, has long been known for its effects on comprehension. The limitation of the words used requires that students understand their subject. In a study in 1980 Taylor and Berkowtiz found that those who used precis writing had better memory and comprehension than those who used study guides, answered questions, or just read the passage (Stotsky, 1982). To this list Stotsky adds, "combining reading instruction with different kinds of writing activites may help to teach reading comprehension in possibly the most meaningful way and it may be the missing link in reading comprehension instruction" (1982, p. 339).

But what of expressive writing? Heller (1980) was able to positively compare reading comprehension to 20 syntactic elements in the expository writing of college freshmen. The Language Experience Approach, which uses the students' own writing, has often complimented itself on its transference to reading and reading comprehension. Would just plain

writing actually help reading comprehension? Bissex calls for any kind of writing, be it writing notes, journals, books, and messages (1981). Goodman and Goodman would agree (1983). Collins (1981) had college freshmen write for ten minutes a day for several weeks. The students wrote in the expressive mode with no writing instruction at all. The claims made were increased reading comprehension, improved attitudes toward school and more self-esteem. (It was unclear where these results came from, however, as Collins did not include the tests or other forms used to reach these conclusions.)

In summary, it can be said that utilizing writing has an effect on reading comprehension. How much of an effect, needs further research and documentation. A panacea has not been found, but a form of writing not yet discussed that has great potential for reading comprehension is the process approach to writing, commonly known as the writing process.

The Process Of Writing And Its Effect On Reading Comprehension

Collins stated in 1985, that "with increasing frequency, expressive writing is being credited with improvement in another cognitive activity once thought unrelated, reading comprehension" (p. 48). The writing process, as an example of expressive writing, is certainly worthy of this statement. Unfortunately, the holistic theoretical base of the writing process often makes it difficult to pinpoint specific reading comprehension growth in their studies. They are viewing 'process' not

'product' and are loathe to break writing (and reading) into segments to be studied. Indeed, if the research base were tested more empirically, the writing process might well hold as much prestige for reading comprehension as sentence combining.

But that is often not the focus of the writing process researchers. They want to understand the process of writing. If reading comprehension comes out of that, so be it. Because Collins' previously mentioned study (1981) of college freshmen writing ten minutes a day did not follow the writing process format of conferencing, it was not listed in this section. There is, however, a close relationshp here to the process of writing and reading comprehension. Graves, however, would take issue with Collins' title, "The Use of Writing to Improve Reading Comprehension". D. H. Graves's firm stand as a holistic researcher was made clear when he said, "Notice what (Collins) said, 'to improve reading comprehension'. You don't write to improve reading comprehension, you write to write" (personal communication, April 5, 1985). It is not that Graves does not believe in a reading connection, or even that reading comprehension can be improved through writing, but his conviction is that writing is important for itself (Graves, 1983).

Therefore, one cannot always search the writing process research for specific evidence of increased reading comprehension. They are rarely looking for this and their holistic research model does not lend itself to such specifics. One can, however, make intelligent and sound inferences from both the research and the pedagogy.

The Writing Process Research

During the course of Graves' study of the writing processes of six, seven, eight, and nine year old children, much time was taken from formal reading instruction for writing. Instead of reading scores going down, they went up significantly (Graves & Murray, 1983). One can only assume this included reading comprehension.

Similarly, Calkins' study at the Atkinson School confirmed that the writing process used many skills normally found in reading: main idea, organizing details, cause/effect, inferences, sequence, missing information, time lapses, sound drills, and READING COMPREHENSION. She even found students drilling each other on comprehension. "In a sense, everything that happened during writing time related to skills traditionally viewed as reading skills" (1983a, p. 83).

Boutwell (1983) observed the process of writing through one student, Marta. She found not only that "strategic reading was an integral part of Marta's writing process" (p. 725) but that the process of recording her writing thoughts into the tape recorder showed how Marta was able to rethink and resee strategies. One certainly cannot 'rethink' and 'resee' without first comprehending.

Cioffi, in studying the videotapes from Graves' 1979 research, found that "drawing, reading, and reflecting all seem to be linked to the composing task" (1984, p. 187). One cannot reflect without first comprehending what was to be reflected.

But it is Flemming's work that gives us the most concrete evidence. Despite Graves' stand, P. Flemming believes that the writing process has a specific effect on reading comprehension (personal communication, May 4, 1985). Her goal with the writing process was to have each student make at

least one year's growth on the Diagnostic Reading Scales (1982). While this did not seem impressive given that the writing process time was supplemental, the students' growth as measured through silent reading was significantly higher than her goal. P. Flemming believes that the only way to really evaluate reading comprehension is through silent reading scores. She is finding even today that the process of writing, and in particular peer conferencing, encourages students to ask questions and to get involved as readers and writers. The decisions and awareness that grow from this process transfer to an awareness of reading and reading comprehension (personal communication, May 4, 1985).

The Writing Process Pedagogy

What do the masters say of the pedagogy? Flemming's 1982 study cited the importance of meaning in writing. Goodman and Goodman added, "we believe that development in reading and writing can only occur if people actively participate in reading and writing experiences which have significant and personal meaning for the user" (1983, p. 597). The degree to which a child feels invested in a thought, either written or read, is significant to comprehension.

Sentence combining advocates have been criticized for their unmotivating and depersonalized materials (Klein, 1980). A case for lack of personal investment and interest could also be made for other forms of writing that encourage reading comprehension: Précis writing, dictation, etc. Yet no form of writing is more personally significant than expressive writing developed during the writing process. As Maya stated, "What more meaningful reading experience can they have than with material that they

have written?" (1979, p. 814). What is remembered better than the ideas one develops?

Goodman believed that comprehension could not even take place if there wasn't a connection between a child's experience and the text (Maya, 1979). The writing process ensures this. How, is perhaps best explained by Perl's description of the recursiveness and 'felt sense' found in writing. "Recursiveness in writing implies that there is a forward-moving action that exists by virtue of a backward-moving action....The recursive move, then, that is hardest to document but is probably the most important to be aware of is the move to felt sense, to what is not yet in words but out of which images, words, and concepts emerge" (p. 46-7). It is perhaps here that the student says, 'Ah ha!', where ideas are born and comprehension occurs. It is perhaps here that schemata are developed. M. E. Giacobbe intuitively believes that more schemata are changed when solving one's own writing concerns and that these cognitive changes ultimately affect reading comprehension (personal communication, March 15, 1985).

How the development of schemata can aid reading comprehension is best described by Crismore.

> The point of providing students with opportunities to structure ideas through the writing process...is that readers get a firm notion of what idea structuring really is when they have to do it. They acquire and develop schemata ...which they can transfer from the writing situation to the reading situation. With these schemata, they can uncover the author's structure more successfully or in the case of author disorganization or lack of structure, they can mentally generate their own structure and impose it on the text (1982, pp.17-8).

The ability to organize information for one's own writing as viewed during the writing process gives students insight into the writing of

others. Hennings (1982) described it as refining one's schemata in order to comprehend other content. Newkirk (1982) called this ability 'critical judgement'. Platt said, "Evidently the ability to organize one's thoughts in writing is helpful for full comprehension of someone else's thoughts" (1977, 267).

It is perhaps the recursiveness then, of moving back and forth between rehearsing, drafting, and revising, that a 'felt sense' is found, and ideas are developed that can be accomodated to understand the works of others. It is not an idea easily tested or measured but one that would have a profound effect on reading comprehension. At the very least it would seem "plausible that a writing program that constantly asks students to make judgments as to clarity, completeness, order, interest, and consistency will have a beneficial effect on all reading" (Newkirk, 1982, p. 457).

Summary And Conclusions

Summary

In summary, reading and writing are no longer viewed as separate, distinct processes, but are assumed to be integrated and mutually reinforcing. That one can affect the other was seen through the pedagogy and research on writing's influence on reading comprehension. Writing is a powerful ally to reading comprehension. As Stotsky said, "For anything to be truly learned or comprehended, it must be worked through completely. Writing may be the most active way of ensuring that process (1982, p.

339).

The Recommended Approach: The Reader/Writer/Thinker

Which writing approach promises the best results? It depends on the data base. The process of writing is highly complex and difficult to test as isolated skills affecting other skills. While Flemming's work is encouraging, Graves' data on the writing process are not numbers, but human faces (1980).

Stotsky remarked in 1983 that studies to improve writing did not show as great a gain in reading comprehension as studies that used writing activities to 'specifically' improve reading comprehension. This is hard to swallow when much of the writing process research doesn't even assess itself in this way. Graves is, in fact, leary of using standard testing to measure the potential of the writing process. He believes this 'constrictive' rather than 'elaborate' assessment cannot possibly measure such things as the ability to appreciate a text, connect a text to one's own life, or be a predictor of text. As he said, "the writing process does things that are not assessed" (D. H. Graves, personal communication, April 5, 1985).

But neither is there hard proof that says the writing process is better for reading comprehension. It is my inclination, however, that it has a better cognitive base for doing so. The writing process encourages thinking and the act of writing continues the act of thinking. "To me, any act of thinking helps other acts of thinking" (D. H. Graves, personal communication, April 5, 1985).

Wittrock's generative model of comprehension involves the active

generation of semantic relations. He found that for reading comprehension, the type of generation made with writing is less important than the act of generating words (1983). I disagree. The act of generating in sentence combining, for instance, is a closed act. It is done as practice, and it helps comprehension. But the act of generating from one's own writing has endless possibilities—it is open-ended. New ideas are germinated, new schemata developed. Thoughts can be built upon thoughts. As you write, you read, and you think. Squire added, "Our failure to teach composing and comprehending as process impedes our efforts not only to teach children to read and write, but our efforts to teach them to think" (1983, p. 581). Thinking is comprehension.

The Reader and Writer as Composer

In fact, the reader/writer/thinker frame of reference promises to be a thrust not just for the writing process, but for the development of both the reading and writing process. Pearson and Tierney say "the thoughtful reader...is the reader who reads as if she were a writer composing a text for yet another reader who lives within her" (1984, p. 144). The reader is the composer just as the writer is the composer -- and both compose as a thinking process to develop meaning or comprehension. "Consistent with this notion of the reader as a writer, we believe that comprehension is, in its most sensitive realization, an act of composing" (1984, p. 147). This reasoning makes the ability to compose not only an aid to reading comprehension, but even a pre-requisite. The writing process thus assumes even greater status.

Pearson and Tierney's (1984) model of the thoughtful reader has many

parallels with the model of the writing process. Atwell too has found the two processes intertwined: "As my teaching of writing was transformed by my getting inside writing, so my teaching of reading is changing as my students and I get inside other's writing; in short we read writing just as we write reading" (1984, p.240). Similar ideas are also occurring with other writing process researchers. Graves, Hansen, Giacobbe, and Flemming are now viewing writing and reading together as process (personal communication, M. E. Giacobbe, March, 1985; D. H. Graves, April 5, 1985; J. Hansen, April 11, 1985; P. Flemming, May 4, 1985). They too are seeing both reading and writing as acts of composing and as quests for meaning.

At the Mastway School in Somersworth, N.H. Hansen and Graves are studying the reading/writing process. The writing process is taught along with the reading process. The students are learning reading, writing, and comprehension through their own writing and trade books. "If you treat what the child writes as reading, and treat for example Sendak as writing, then you get a very exciting reaction to each" (Graves, 1985). A group of first graders being observed by Hansen knew from their own writing that reading ought to make sense. When it did not, they actively sought to find out the author's meaning. This, says J. Hansen, "is the basis of reading comprehension" (personal communication, April 11, 1985). It is also an outgrowth of the composer acting as both reader and writer.

Conclusions

In essence, our discussion has come full circle. An integral connection has been found between reading and writing. Writing activities appear to improve reading comprehension. An assumption was made that the

writing process has profound potential for reading comprehension. Yet why this was so has brought us back to the beginning--in order to maintain understanding, the reader acts as a composer just as the writer does. As this idea is developed, the researchers themselves are studying not just the writing process, but the process of reading as well.

The goal now is not one of merely writing or reading, but of learning--and the ownership for this learning is going more often into the hands of the students. M. E. Giacobbe believes that taking ownership of the texts is the main element in helping reading comprehension (personal communication, March 15, 1985). The essence of Graves' lecture on Martha's Vineyard was that students who are given more choice, more ownership in their reading, writing, and other work, are learning more (Graves, 1985).

In the final analysis, then, the goal is not just one of writing affecting reading comprehension, but of reading and writing mutually affecting learning. That is the ultimate goal of comprehension.

Recommendations for Educators and Researchers

In light of these findings, several recommendations can and should be made to those in both the educational and research arenas. For clarity and brevity, these will be made in list form.

Recommendations to Educators

1.) Given the research on the reading/writing connection and the strong implication that one affects the other, both reading and writing should be taught together within a contextual framework. Rather than left to chance, students need to be shown in context how the skills in reading are similar to the skills in writing, and vice versa. Through this understanding, reciprocal or at least flexible schemata can hopefully be developed.

2.) Students need to experience the writing and reading processes concurrently to fully develop expertise in each. This method should also develop critical thinking skills as well as an understanding of the notion that the reader and writer can be both the composer and comprehender.

3.) Writing cannot be undervalued. Writing in almost all forms should be encouraged not only for itself, but for the development of reading skills as well, particularly reading comprehension.

4.) Graves spoke in 1985 of the importance of time to the processes of reading, writing, and thinking. I agree. Students need enough sustained

daily time in class to read, write, and especially to think. This includes the time to inititate and respond to questions and discussions so that comprehension is fostered in each area of language processing.

5.) Similar to the Mastway School, a more elaborate system of ownership needs to be developed within our schools so that students are encouraged to take more responsibility for their overall work. The importance of active choice and self-motivation, especially during reading and writing, cannot be underestimated. Not only does comprehension thrive on it, but a student's overall academic and social development depends on it.

6.) While many have said this before (Smith, 1981; Graves, 1983), it needs reiteration. Teachers need to know how to write to teach writing. I believe this holds true for reading as well. Teachers cannot teach reading unless they understand the process of reading. This is especially true for reading comprehension. More workshops should be given on the teaching of both reading and writing, and particularly how to teach the reading and writing process.

7.) Teachers and publishers need to thoroughly understand the reading/writing connection in order for effective materials to be developed and used. Likewise, all teachers and publishers need to be aware of the latest research findings so that these findings can be actualized through materials and within classrooms.

Recommendations for Researchers.

1.) More specific research is needed on the effects of writing on reading and reading on writing.

2.) Research and pedagogy need to be developed that will help educators promote the writing process to the public. If, in fact, the writing process develops better thinking and comprehension skills, and if standard assessments are not a true measure of the potential of the writing process, then the public needs to understand what standard assessments don't test but should.

3.) Continued in-depth research needs to be made on the dual processes of reading and writing. These studies should continue to focus on process (vs. product) through the use of direct observation, videotapes, interviews, and think-alouds. Thought does need to be given, however, to developing measurements that would more fully test the products of these processes. Perhaps holistic assessments can be further developed so that they are more objective and easier to administer. In this way, some base of comparison could be made between holistic and more empirically based research.

4.) More research needs to be aimed at how writing specifically affects reading comprehension. This should be done with both empirical and holistic research models so that we, as educators, have the benefit of both process and product evaluation.

5.) Further research is needed on the cognitive schema theory and the model presented by Pearson and Tierney (1984) of the reader/writer/composer. Both areas appear to be crucial to our full understanding of the reading and writing process, as well as for the development of any materials that might help put these theories into practice.

6.) A study should be developed on which approach holds the most promise for reading comprehension and comprehension in general: A teacher

directed skills approach, a self-discovery approach, or a combination of each.

7.) Researchers need to remember their audience. Not only are they speaking to their peers, but they are seriously being read by the educating and publishing world. Researchers need to present sound evidence for their conclusions in a clear, thoughtful manner—our curriculum and methodology depend on it.

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